SEQUENCE LISTING

<110> Jongsma, Maarten Anthonie
Strukelj, Borut
Lenarcic, Brigita
Gruden, Kristina
Turk, Vito
Bosch, Hendrik J.
Stiekema, Willem Johannes

<120> A Method for Plant Protection Against Insects or Nematodes

<130> 250308-1020

<140> 09/445,480
<141> 2000-07-07

<150> PCT/NL98/00352
<151> 1998-06-18

<160> 42

<170> PatentIn version 3.2

<210> 1
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<212> DNA
<213> Actinia equina

<300>
<301> Gruden, Kristina; Strukelj, Borut; Popovic, Tatjana; Lenarci
c,
Brigita; Bevec, Tadeja; Brzin, Joze; Kregar, Igor;
Herzog-Velikonja, Jana; Stiekema, Willem J; Bosch, Dirk
<302> The Cysteine Protease Activity of Colorado Potato Beetle
(Leptinotarsa decemlineata) Guts, Which is Insensitive to Po
tato
Protease Inhibitors, is Inhibited by Thyroglobulin Type-1
<303> Insect Biochem. Mol. Biol
<304> 28
<306> 549-560
<307> 1998

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atggaaaaga gattctagga accaagatcc gtggatctcc ggattgcagc cgcagaaaag
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420

gagaatgcta ctgtgtggat aagaaaggaa aagaacttga aggcacaaga caacagggaa
480

ggccaacctg cgaaagacac ctaagcgaat gcgaggaagc tcgaatcaag gcgcattcaa
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acagtcttcg tgttgagatg ttcgtgccag agtgtttaga agatggatca tataacccag
600

tacagtgctg gcctagcaca ggatactgtt ggtgcgtcga tgaaggaggg gtaaaggtac
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caggttccga tgtcagattt aaacgcccca catgctaaga aaaacacagt gaacaaagtg
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Ser Leu Thr Lys Cys Gln Gln Leu Gln Ala Ser Ala Asn Ser Gly Leu
        35                  40                  45

Ile Gly Thr Tyr Val Pro Gln Cys Lys Glu Thr Gly Glu Phe Glu Glu
    50                  55                  60

Lys Gln Cys Trp Gly Ser Thr Gly Tyr Cys Trp Cys Val Asp Glu Asp
65                  70                  75                  80

Gly Lys Glu Ile Leu Gly Thr Lys Ile Arg Gly Ser Pro Asp Cys Ser
                85                  90                  95

Arg Arg Lys Ala Ala Leu Thr Leu Cys Gln Met Met Gln Ala Ile Ile
            100                 105                 110

Val Asn Val Pro Gly Trp Cys Gly Pro Pro Ser Cys Lys Ala Asp Gly
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Ser Phe Asp Glu Val Gln Cys Cys Ala Ser Asn Gly Glu Cys Tyr Cys
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Val Asp Lys Lys Gly Lys Glu Leu Glu Gly Thr Arg Gln Gln Gly Arg
145                 150                 155                 160

Pro Thr Cys Glu Arg His Leu Ser Glu Cys Glu Glu Ala Arg Ile Lys
                165                 170                 175

Ala His Ser Asn Ser Leu Arg Val Glu Met Phe Val Pro Glu Cys Leu
            180                 185                 190
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Glu Asp Gly Ser Tyr Asn Pro Val Gln Cys Trp Pro Ser Thr Gly Tyr
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120

caggcctcgg ctaacagtgg tctgataggt acttatgtac cacaatgcaa agaaactgga
180

gagtttgaag aaaagcaatg ctggggatcg actggttact gttggtgtgt ggatgaagat
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gccttaacac tttgccagat gatgcaagcc atcattgtga atgtccctgg ttggtgtgga
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gaatgctact gtgtggataa gaaaggaaaa gaacttgaag gcacaagaca acagggaagg
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Met Ile Trp Val Leu Phe Ile Ala Cys Ala Ile Thr Ser Thr Gln Ala
20 25 30

Ser Leu Thr Lys Cys Gln Gln Leu Gln Ala Ser Ala Asn Ser Gly Leu
35 40 45

Ile Gly Thr Tyr Val Pro Gln Cys Lys Glu Thr Gly Glu Phe Glu Glu
50 55 60

Lys Gln Cys Trp Gly Ser Thr Gly Tyr Cys Trp Cys Val Asp Glu Asp
65 70 75 80

Gly Lys Glu Ile Leu Gly Thr Lys Ile Arg Gly Ser Pro Asp Cys Ser
85 90 95

Arg Arg Lys Ala Ala Leu Thr Leu Cys Gln Met Met Gln Ala Ile Ile
100 105 110

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Val Asn Val Pro Gly Trp Cys Gly Pro Pro Ser Cys Lys Ala Asp Gly
        115                 120                 125

Ser Phe Asp Glu Val Gln Cys Cys Ala Ser Asn Gly Glu Cys Tyr Cys
    130                 135                 140

Val Asp Lys Lys Gly Lys Glu Leu Glu Gly Thr Arg Gln Gln Gly Arg
145                 150                 155                 160

Pro Thr Cys Glu Arg His Leu Ser Glu Cys Glu Glu Ala Arg Ile Lys
                165                 170                 175

Ala His Ser Asn Ser Leu Arg Val Glu Met Phe Val Pro Glu Cys Leu
            180                 185                 190

Glu Asp Gly Ser Tyr Asn Pro Val Gln Cys Trp Pro Ser Thr Gly Tyr
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Arg Phe Lys Arg Pro Thr Cys
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Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Pro Xaa Cys
1 5 10 15

Xaa Xaa Xaa Gly Xaa Xaa Xaa Xaa Xaa Gln Cys Xaa Xaa Xaa Xaa Xaa
20 25 30

Xaa Cys Thr Cys Val Xaa Xaa Xaa Gly Xaa Xaa Xaa Xaa Xaa Xaa Cys
35 40 45

<210> 8
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<220>
<223> synthetic substrate

<220>
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<223> X = nitrophenylalanine

<400> 8

Pro Thr Glu Phe Xaa Arg Leu
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<220>
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<400> 11
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<210> 12
<211> 47
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<210> 14
<211> 27
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<220>

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<400> 14
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<210> 15
<211> 24
<212> DNA
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<220>
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<400> 15
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<210> 16
<211> 32
<212> DNA
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<400> 16
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<400> 17

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<210> 18

<211> 65
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<213> Human Invariant Chain

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Leu Thr Lys Cys Gln Glu Glu Val Ser His Ile Pro Ala Val His Pro
1 5 10 15

Gly Ser Phe Arg Pro Lys Cys Asp Glu Asn Gly Asn Tyr Leu Pro Leu
20 25 30

Gln Cys Tyr Gly Ser Ile Gly Tyr Cys Trp Cys Val Phe Pro Asn Gly
35 40 45

Thr Glu Val Pro Asn Thr Arg Ser Arg Gly His His Asn Cys Ser Glu
50 55 60

Ser
65

<210> 19
<211> 67
<212> PRT
<213> rat invariant chain

<400> 19

Lys Val Leu Thr Lys Cys Gln Glu Glu Val Ser His Ile Pro Asp Val
1 5 10 15

His Pro Gly Ala Phe Arg Pro Lys Val Asp Glu Asn Gly Asn Tyr Met
20 25 30

Pro Leu Gln Cys His Gly Ser Thr Gly Tyr Cys Trp Cys Val Phe Pro
35 40 45

Asn Gly Thr Glu Val Pro His Thr Lys Ser Arg Gly Arg His Asn Cys
50 55 60

Ser Glu Pro
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<210> 20
<211> 74
<212> PRT
<213> chum salmon egg inh.

<400> 20

His Val Pro Ile Asp Gly Ile Phe His Leu Lys Thr Pro Cys Glu Leu
1 5 10 15

Ala Arg Asp Ala Ala Thr His Gly Pro Ile Gly Gly Phe Ile Pro Thr
20 25 30

Cys Asp Tyr Asn Gly Gln Tyr Thr Pro Glu Gln Cys Trp Gly Ser Thr
35 40 45

Gly Tyr Cys Trp Cys Val Asn Ser Ser Gly Gln Lys Leu Pro Gly Thr
50 55 60

Asp Thr Pro Pro Gly Ser Ala Ser Asn Cys
65 70

<210> 21
<211> 69
<212> PRT
<213> Mouse Nidogen

<400> 21

Glu His Ile Leu Gly Ala Ala Gly Gly Ala Asp Ala Gln Arg Pro Thr
1 5 10 15

Leu Gln Gly Met Phe Val Pro Gln Cys Asp Glu Tyr Gly His Tyr Val
20 25 30

Pro Thr Gln Cys His His Ser Thr Gly Tyr Cys Trp Cys Val Asp Arg

35 40 45

Asp Gly Arg Glu Leu Glu Gly Ser Arg Thr Pro Pro Gly Met Arg Pro
50 55 60

Pro Cys Leu Ser Thr
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<210> 22
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<212> PRT
<213> Human Epithelial Glycoprot

<400> 22

Gly Ser Lys Leu Gly Arg Arg Ala Lys Pro Glu Gly Ala Leu Gln Asn
1 5 10 15

Asn Asp Gly Leu Tyr Asp Pro Asp Cys Asp Glu Ser Gly Leu Phe Lys
20 25 30

Ala Lys Gln Cys Asn Gly Thr Ser Met Cys Trp Cys Val Asn Thr Ala
35 40 45

Gly Val Arg Arg Thr Asp Lys Asp Thr Glu Ile Thr Cys Ser Glu Arg
50 55 60

Val Arg Thr Tyr
65

<210> 23
<211> 65
<212> PRT
<213> Bull Frog Saxiphilin

<400> 23

Lys Cys Leu Lys Glu Arg Gln Val Ala Leu Gly Gly Asp Glu Lys Val
1 5 10 15

Leu Gly Arg Phe Val Pro Gln Cys Asp Glu Lys Gly Asn Tyr Glu Pro
20 25 30

Gln Gln Phe His Gly Ser Thr Gly Tyr Ser Trp Cys Val Asn Ala Ile
35 40 45

Gly Glu Glu Ile Ala Gly Thr Lys Thr Pro Pro Gly Lys Ile Pro Ala
50 55 60

Cys
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<210> 24
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<213> Thyroglobulin 1.1

<400> 24

Tyr Val Pro Gln Cys Ala Glu Asp Gly Ser Phe Gln Thr Val Gln Cys
1 5 10 15

Gln Asn Asp Gly Arg Ser Cys Trp Cys Val Gly Ala Asn Gly Ser Glu
20 25 30

Val Leu Gly Ser Arg Gln Pro Gly Arg Pro Val Ala Cys
35 40 45

<210> 25
<211> 45
<212> PRT
<213> Thyroglobulin 1.2

<400> 25

Tyr Leu Pro Gln Cys Gln Asp Ser Gly Asp Tyr Ala Pro Val Gln Cys
1 5 10 15

Asp Val Gln His Val Gln Cys Trp Cys Val Asp Ala Glu Gly Met Glu

20 25 30

Val Tyr Gly Thr Arg Gln Leu Gly Arg Pro Lys Arg Cys
35 40 45

<210> 26
<211> 43
<212> PRT
<213> Thyroglobulin 1.5

<400> 26

Phe Val Pro Ser Cys Thr Thr Glu Gly Ser Tyr Glu Asp Val Gln Cys
1 5 10 15

Phe Ser Gly Glu Cys Trp Cys Val Asn Ser Trp Gly Lys Glu Leu Pro
20 25 30

Gly Ser Arg Val Arg Asp Gly Gln Pro Arg Cys
35 40

<210> 27
<211> 44
<212> PRT
<213> Thyroglobulin 1.6

<400> 27

Phe Val Pro Ala Cys Thr Ser Glu Gly His Phe Leu Pro Val Gln Cys
1 5 10 15

Phe Asn Ser Glu Cys Tyr Cys Val Asp Ala Glu Gly Gln Ala Ile Pro
20 25 30

Gly Thr Arg Ser Ala Ile Gly Lys Pro Lys Lys Cys
35 40

<210> 28
<211> 70
<212> PRT

<213> Bovine Thyroglobulin

<400> 28

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Arg Thr Ser Pro Gly Tyr Ser Pro Ala Cys Arg Ala Glu Asp Gly Gly
20 25 30

Phe Ser Pro Val Gln Cys Asp Pro Ala Gln Gly Ser Cys Trp Cys Val
35 40 45

Leu Gly Ser Gly Glu Glu Val Pro Gly Thr Arg Val Ala Gly Ser Gln
50 55 60

Pro Ala Cys Glu Ser Pro
65 70

<210> 29
<211> 80
<212> PRT
<213> Mouse Entactin

<400> 29

Lys Thr Arg Cys Gln Leu Glu Arg Glu His Ile Leu Gly Ala Ala Gly
1 5 10 15

Gly Ala Asp Ala Gln Arg Pro Thr Leu Gln Gly Met Phe Val Pro Gln
20 25 30

Cys Asp Glu Tyr Gly His Tyr Val Pro Thr Gln Cys His His Ser Thr
35 40 45

Gly Tyr Cys Trp Cys Val Asp Arg Asp Gly Arg Glu Leu Glu Gly Ser
50 55 60

Arg Thr Pro Pro Gly Met Arg Pro Pro Cys Leu Ser Thr Val Ala Pro

65 70 75 80

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<211> 82
<212> PRT
<213> Human IGF-Binding Protein-3

<400> 30

Tyr Gly Pro Cys Arg Arg Glu Met Glu Asp Thr Leu Asn His Leu Lys
1 5 10 15

Phe Leu Asn Val Leu Ser Pro Arg Gly Val His Ile Pro Asn Cys Asp
20 25 30

Lys Lys Gly Phe Tyr Lys Lys Lys Gln Cys Arg Pro Ser Lys Gly Arg
35 40 45

Lys Arg Gly Phe Cys Trp Cys Val Asp Lys Tyr Gly Gln Pro Leu Pro
50 55 60

Gly Tyr Thr Thr Lys Gly Lys Glu Asp Val His Cys Tyr Ser Met Gln
65 70 75 80

Ser Lys

<210> 31
<211> 77
<212> PRT
<213> Human Testican

<400> 31

Gln Lys Pro Gly Gly Leu Pro Cys Gln Asn Glu Met Asn Arg Ile Gly
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Lys Leu Ser Lys Gly Lys Ser Leu Leu Gly Ala Phe Ile Pro Arg Cys
20 25 30